ARIZONA DEPARTMENT OF WATER RESOURCES

NON-EXEMPT WELL PERMIT

PURSUANT TO A.R.S. §§ 45-598 AND 45-599

PERMIT NO. T-224084

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

This is to certify that Application No. T-224084 meets the requirements of A.R.S. §§ 45-598 and 45-599 for the construction of a new well. The Director hereby grants authority to the Permittee to construct and operate a non-exempt well, subject to the following limitations and conditions:

Permit Limitations

Permittee: City of Tucson/Tucson Water
PO Box 27210
Tucson, AZ 85726-7210

Well Registration Number: 55-224084 File No. D (14-11) 27BBD

PERMIT NO. T-224084

Active Management Area:	Tucson
Sub-basin:	Avra Valley
Well Location:	The SE ¼ of the NW ¼ of the NW ¼ of Section 27, Township 14 South, Range 11 East of the GSRB&M
Depth:	920 ft.
Casing Material:	Steel
Casing Diameter:	20 inches
Maximum Pumping Capacity:	2500 gallons per minute
Maximum Annual Volume:	3000 acre-feet
Authorized Place of Use for Groundwater Withdrawn:	As Authorized by Right No. 58-110580.0009
Authorized Use of Groundwater:	As Authorized by Right No. 58-110580.0009
Latest Date for Completing Well:	August 1, 2016

Permit Conditions

1. If the permitted well is not completed on or before **August 1, 2016**, the Permittee will be required to file a new application, and secure a new permit before proceeding with construction.

2. This permit is issued pursuant to A.R.S. § 45-599 and authorizes the permittee to construct a new well or a replacement well in a new location for the purpose of withdrawing groundwater for the use or uses set forth in the permit. This permit does not authorize the permittee to withdraw surface water from the well. If the permittee withdraws surface water from the well in any year, the permittee shall do so only pursuant to a decreed or appropriative surface water right and shall separately report in the annual report filed pursuant to A.R.S. § 45-632 the amount of groundwater and surface water withdrawn from the well.

3. The permittee shall monitor withdrawals of groundwater and shall report the total amount of groundwater withdrawn on an Annual Water Withdrawal and Use Report. The first annual reporting period shall be from the date of issuance of this permit through December 31, 2014. Subsequent annual reporting periods shall be from January 1 through December 31.

4. The proposed well shall be constructed in accordance with the minimum well construction standards, pursuant to A.A.C. R12-15-811.

5. The issuance of the permit does not waive any federal, state, county or local government ordinances, regulations or permits for which the facility may have to comply.

WITNESS my hand and seal of office this 2nd day of December, 2014.

Michael Johnson, Assistant Director

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION
3550 N. Central Avenue, Phoenix Arizona 85012

THIS AUTHORIZATION SHALL BE IN THE POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: **55-224084** **PERMIT NO. 74-211288.0002**

AUTHORIZED DRILLER: **TUCSON WATER OPERATIONS** **LICENSE NO:** **388**

A NOTICE OF INTENTION TO DRILL A NEW NON-EXEMPT WELL INSIDE THE TUCSON ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: **CITY OF TUCSON – TUCSON WATER** **PO BOX 27210** **TUCSON, AZ 85726-7210**

The well(s) is/are to be located in the:

SE¼ of the NW¼ of the NW¼ of Section 27, Township 14 South Range 11 East

No. of well(s) in this project: **1**

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 1st DAY OF AUGUST, 2016.

Stella Murillo

GROUNDWATER PERMITTING AND WELLS UNIT

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

Stella A. Murillo

From: Chuck Faas <Chuck.Faas@tucsonaz.gov>
Sent: Thursday, October 29, 2015 9:34 AM
To: Stella A. Murillo
Subject: Well Permits

Stella,
Per our phone conversation we would like at least a three month extension on the drilling permits for wells 55-224084, 55-224083 and 55-224082 due to lack of driller availability. We are going out to bid to drill these wells and we have been told by all prospective bidders it may be months before they could have a rig available. I think we could have the wells completed before August 2016 barring any problems. If you have any questions please contact me.
Thanks
Chuck

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION
3550 N. Central Avenue, Phoenix Arizona 85012

THIS AUTHORIZATION SHALL BE IN THE POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-224084 **PERMIT NO: 74-211288.0002**

AUTHORIZED DRILLER: Tucson Water Operations **LICENSE NO: 388**

A NOTICE OF INTENTION TO DRILL A NEW NON-EXEMPT WELL INSIDE THE TUCSON ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: City of Tucson P.O. Box 27210 Tucson, AZ 85726

The well is to be located in the:

SE¼ of the NW¼ of the NW ¼ of Section 27, Township 14 (South), Range 11(East)

No. of wells in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 31st DAY OF March, 2016.

Stella Murillo

WATER MANAGEMENT DIVISION

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT OF WATER RESOURCES
Water Management Division
3550 North Central Ave, 2nd Floor
Phoenix, Arizona 85012-2105
Phone (602) 771-8500 Fax (602) 771-8689

APPLICATION FOR A RECOVERY WELL PERMIT (§ 45-834.01)

FOR OFFICE USE ONLY
Application No.: 74-211288.0002
Date Received: Dec 15, 2014

The initial fee for an application for a Recovery Well Permit is $1,000. Total fees for this application are based upon an hourly billable rate, which can be found on the ADWR web site @www.azwater.gov. If the costs of reviewing your application exceed $1,000, you will be invoiced for the difference, up to a maximum total fee of $10,000. Payment may be made by cash, check, or credit card (if you wish to pay by credit card, please contact the Groundwater Permitting Program at 602-771-8527). Checks should be made payable to the Arizona Department of Water Resources. In addition to the hourly application fee, the applicant must pay any review-related costs associated with the application and the actual cost of mailing or publishing any legal notice of the application or any notice of a pre-decision administrative hearing on the application. Review-related costs are: (1) costs associated with a pre-decision hearing on the application, such as court reporter services and facility rentals for the hearing, and (2) mileage expenses for a site visit conducted before issuing a decision on the application. **Failure to enclose the initial application fee will cause the application to be returned. Fees for an application for a Recovery Well Permit are authorized by A.R.S. § 45-871.01 and A.A.C. R12-15-103.**

PLEASE SUBMIT ONE ORIGINAL AND TWO COPIES OF THE COMPLETED APPLICATION AND ALL SUPPORTING MATERIALS.

SA-013A

1. Name of Applicant: **City of Tucson/Tucson Water**

P.O. Box 27210	**Tucson**	**AZ**	**85726-7210**
Mailing Address	City	State	Zip

Contact Person **Wally Wilson** Telephone **(520) 837-2239** Fax **(520) 791-3293**

2. Name of Active Management Area or Irrigation Non-Expansion Area if applicable, and name of groundwater basin and subbasin where the facility will be located **Tucson Active Management Area**

3. Name of the owner(s) of the land where wellsites are located **City of Tucson**

   Mailing Address _____
   (If more than one owner, attach a list showing corresponding land owner and well registration number(s)).

4. Legal description of the land where water will be used **Customers within the Tucson Water Service Area**

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION
MAIL TO: P.O. BOX 36020, PHOENIX, ARIZONA 85067-6020
3550 North Central Avenue, Phoenix, Arizona 85012
Phone (602) 771-8500 • Fax (602) 771-8690

RECEIVED
OCT 27 2014
ARIZONA DEPARTMENT OF WATER RESOURCES

SA-012A

APPLICATION FOR A PERMIT TO DRILL OR OPERATE A NON-EXEMPT WELL WITHIN AN ACTIVE MANAGEMENT AREA PURSUANT TO A.R.S. § 45-599

I. INSTRUCTIONS:

1. **This application should be used to obtain a permit to:**
   (a) **Drill a non-exempt well in conjunction with a new or existing General Industrial Use Permit Application, a Certificate of Grandfathered Right, a Service Area Right, or an Irrigation District Right.**
   (b) **Convert an existing well to a non-exempt well, or increase the annual permitted volume to be withdrawn from the well.**
2. **Complete all appropriate items on this application, sign in the appropriate place and mail to P.O. Box 33589, Phoenix, Arizona 85067-3589 or hand deliver to 3550 North Central Avenue, Phoenix, Arizona 85012**
3. **Pursuant to A.R.S. § 45-599 and A.A.C. R12-15-104, the fee for this application is $150.00 and the permit fee is $30.00.**

II. GENERAL DATA:

FOR DEPARTMENT USE ONLY
Application No. T-224084
Registration No. 55-224084
File No. D(14-11)27BBD
Date Received 10/27/14
AMA Tucson
W/S 09 S/B 16

1. Applicant **City of Tucson / Tucson Water**
   Mailing Address **P.O. Box 27210**
   Tucson (City) **AZ** (State) **85726-7210** (Zip Code)
   Contact Person **Chuck Faas**
   Telephone Number **(520) 837-2231**
2. Name of Land Owner **City of Tucson / Tucson Water**
   Mailing Address **Same as above**
   2B. Parcel No. **211-34-016C**
   2C. Public Water System ID # **10-112**
   City State Zip Telephone Number
3. Applicant is: ☑ Owner ☐ Lessee
4. Proposed well is: ☑ **New well** ☐ **Increase in Permitted Maximum Annual Volume for Existing Well** ☐ **Replacement well in a new location.**
5. Claim of entitlement to withdraw groundwater is based upon:
   ☑ Certificate of Grandfathered Right No: **58-110580.0009**
   ☐ General Industrial Use Permit No. 59- _____
   ☐ Service Area Right No: _____
   ☐ Irrigation District Right No: _____
6. The principal use(s) of groundwater will be (**be specific**) **All ancillary uses pertinent to a municipal water provider.**
7. Well location: **SE** ¼ (10 Acre) **NW** ¼ (40 Acre) **NW** ¼ (160 Acre) Section **27** Township **14 S** N/S Range **11 E** E/W
8. Position location of the well: Latitude **32** ° **11** ' **12.9** " N Longitude **111** ° **12** ' **55.9** " W
9. Design Pump Capacity **2500** gpm Depth **920** feet
   Diameter **20** inches Type of casing **Steel**
10. Proposed annual volume of water **3000** acre feet
11. Well is located in the **Avra Valley** subbasin of the **Tucson** Active Management Area.

12. Approximate date construction will begin: MONTH **January** YEAR **2015**

Estimated time to complete new well **1 Month**. (If longer than 1 year, attach explanation.)

13. Legal description of the land where the groundwater will be used: **Within the Tucson Water Service Area**

_____¼ _____¼ _____¼ Section _____Township _____ N/S Range _____ E/W. County _____

10 Acre 40 Acre 160 Acre

14. Is the proposed well site within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility or storage area of hazardous materials? ☐ Yes ☑ No (if yes, a request for a variance must accompany this application pursuant to R12-15-820.)

15. Driller's Name **Tucson Water Operations** DWR License No: **388** ROC License Category _____

Mailing Address: **P.O. Box 27210** **Tucson** **AZ** **85726-7210** **(520)791-2689**

Street City State Zip Telephone Number

16. **Attach a Well Construction Supplement, DWR form 55-90, and include a detailed construction diagram as indicated on the form.**

III. FOR SERVICE AREA WELLS AND IRRIGATION DISTRICT WELLS ONLY:

17. Is the proposed well located in your service area? ☐ Yes ☐ No

18. Will groundwater withdrawn be used in your service area? ☑ Yes ☐ No **(If answer is no, attach explanation.)**

IV. FOR REPLACEMENT WELL IN NEW LOCATION ONLY:

19. Registration number of original well 55- _____.

20. Location of the original well: _____¼ _____¼ _____¼ Section _____ Township _____N/S Range _____E/W

10 Acre 40 Acre 160 Acre

21. Distance between original well and proposed replacement well_____ feet.

22. When determining impacts under the Department's well spacing rules, the director will take into account the collective efforts of reducing or terminating withdrawals from the well being replaced combined with the proposed withdrawals from the replacement well if the applicant submits a hydrological study demonstrating those collective effects to the satisfaction of the director.
Will a hydrological study be submitted? ☐ Yes ☐ No

23. Will the original well be abandoned if applicant receives a permit to drill a replacement well? ☐ Yes ☐ No.
(If yes, please submit a completed Notice of Intent to Abandon a Well along with this application.)
If no, explain the planned use of the original well_____

V. FOR INCREASE IN PERMITTED MAXIMUM VOLUME FOR EXISTING WELL ONLY:

24. Registration number of the existing well 55-_____ Present pump design capacity _____ gallons per minute. Present permitted volume _____acre-feet per year.

25. The new design pump capacity will be_____gallons per minute. New permitted volume will be _____ acre-feet per year.

26. Will the well be modified or deepened? ☐ Yes ☐ No [Pursuant to R12-15-801(29)] **If yes, Attach a Well Construction Supplement, DWR form 55-90, and include a detailed construction diagram as indicated on the form.**

27. The existing well has previously been used in conjunction with or for the following:_____

It is understood that the permit, if granted, will be in accordance with the Groundwater Management Act (Title 45, Chapter 2), and the rules adopted thereunder. The permittee will be bound by the provisions of such law and the provisions of the permit issued.

I (we), **Wally Wilson Chief Hydrologist** **(print name)** **hereby affirm that all information provided in this application is true and correct to the best of my/our knowledge and belief.**

Signature of Applicant _____ **Date** 10/15/2014

Signature of Land Owner (if applicable) _____ **Date** 10/15/2014

ARIZONA DEPARTMENT OF WATER RESOURCES

WATER MANAGEMENT DIVISION
3550 North Central Avenue, Phoenix, Arizona 85012
Phone (602) 771-8585 Fax (602) 771-8688

SA-012A

WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 224084

1. **Well Location:**

   SE (10AC) ¼ of the NW (40AC) ¼ of the NW (160AC) ¼, Sec. 27, Township 14 S Range 11 E.

2. **Position Location of the Well:**

   Latitude 32° 11' 12.9" Longitude 111° 12' 55.9"

   Datum: ☑ NAD 83 ☐ NAD 27 • Other: _____

3. County Pima.

4. Date construction to start: January 2015.

5. Time period well will remain in use: Indefinitely.

6. Is pump equipment to be installed? Yes If so, design pump capacity: 2500 GPM.

7. Well construction plan:

   a. Drilling method (mud rotary, hollow-stem auger, etc.) Air Rotary.

   b. Borehole diameters 46 inches from 0 feet to 40 feet.

      28 inches from 40 feet to 920 feet.

   c. Casing materials Steel.

   d. Method of well development (bail, air lift, surge, etc.) Surge.

   e. Will surface or conductor casing extend above grade? Yes.

8. Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 *et seq.* Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

   Pursuant to Arizona Revised Statutes (A.R.S.) § 45-594.B, all well construction, replacement, deepening and abandonment operations shall comply with the rules adopted pursuant to this section. Therefore, any existing well that is deepened or modified must be brought into compliance with minimum well construction standards specified above, if not already in compliance.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

   N/A

10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? _____Yes __✓__No

11. Is this well to monitor existing contamination? ____Yes __✓__No

Potential contamination?_____Yes __✓__No If yes, please provide explanation:_____

_____

12. Name of Consulting firm, if any: _____

_____

Address City State Zip

Contact Person:_____Telephone Number:_____

13. Drilling firm Tucson Water Operations

DWR License Number: 388 ROC License Category: _____

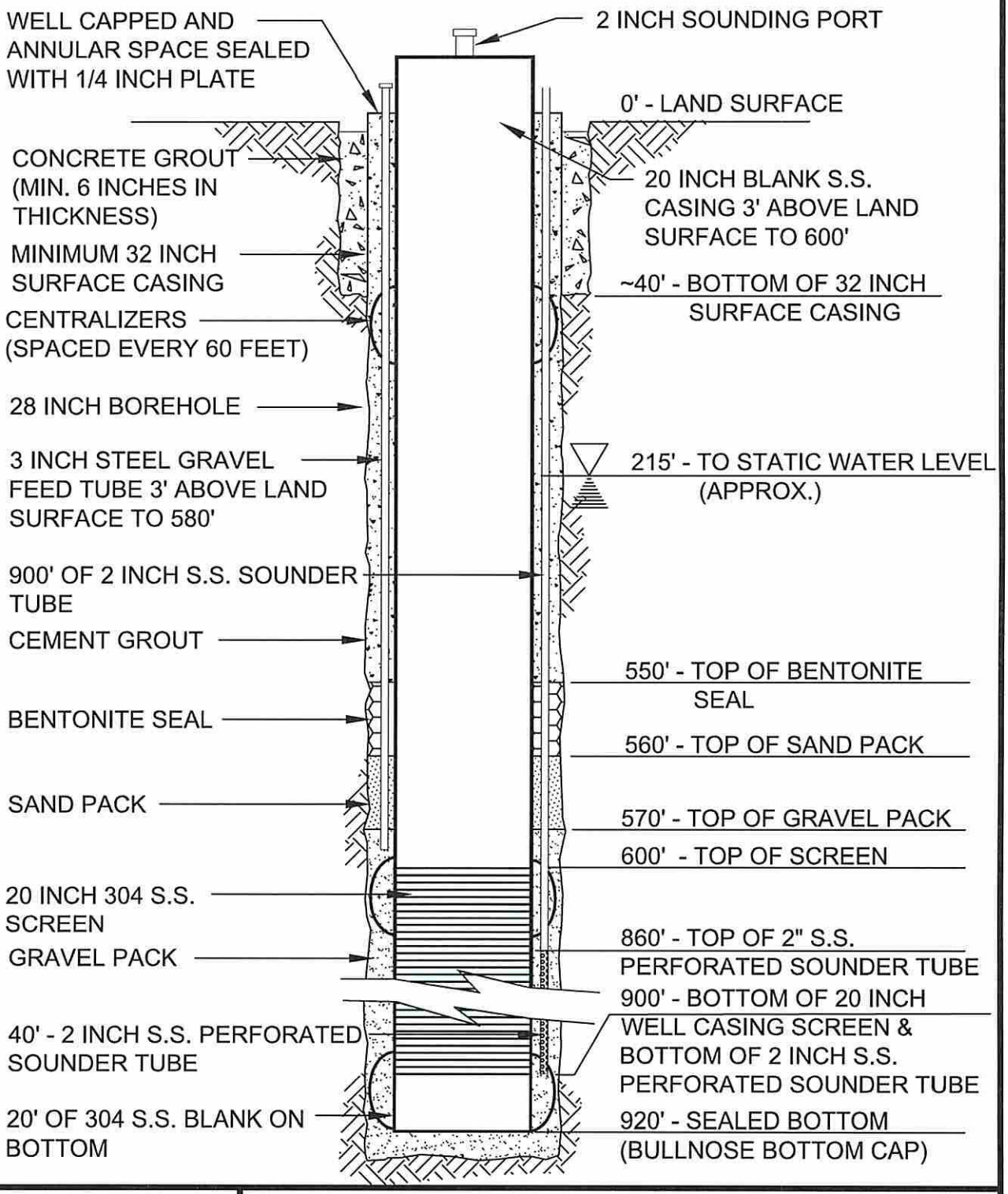
14. Special construction standards, if any, required pursuant to A.A.C. R12-15-821:_____

_____

I (we), Wally R. Wilson (print name) hereby affirm that all information provided in this application is true and correct to the best of my/our knowledge and belief.

Signature of Applicant _____ Date 10/15/2014

CASING, GRAVEL AND GROUT PLACEMENT



TUCSON WATER

WELL CONSTRUCTION DETAIL

WELL SA-012A

DATE: 10/2014 SCALE: NOT TO SCALE

Drawings/2014/SA-012A Well Diagram.dwg

PROJECTED IMPACT FOR THREE PROPOSED WATER-SUPPLY WELLS AV-020B SA-012A SA-013A FOR CITY OF TUCSON

By

Tucson Water
Planning & Engineering Division
Water Resources Management

October 15, 2014

Registered Professional Engineer (Civil)
CERTIFICATE NO.
28158
PATRICIA PHELAN
EISENBERG
Date Signed 10-23-15
ARIZONA U.S.A.
Expires 6-30-16

TABLE OF CONTENTS

ILLUSTRATIONS

INTRODUCTION

The purpose of this report is to evaluate the potential hydrologic impact of three proposed City of Tucson municipal supply wells on the local aquifer system. The well names and locations of the three proposed wells are as follows:

Well Name	Location
AV-020B	D(14-11)28 BCA
SA-012A	D(14-11)27 BBD
SA-013A	D(14-11)28 CAC

The location of these proposed wells are shown on Figure 1. The City of Tucson plans to drill these wells under a Type II Non-Irrigation Grandfathered Water Right Certificate (number 58-110580.0009).

HYDROLOGIC CONDITIONS

The proposed well site is located within the alluvial sediments in the south-central part of Avra Valley. Ground water in the area results from precipitation which occurs in the higher elevations of the Avra Valley and Altar Valley watershed. The direction of ground-water flow is generally to the northwest (Tucson Water, 2007).

The proposed wells are located within Tucson Water's Southern Avra Valley Recharge Project (SAVSARP) groundwater recharge facility. The facility consists of nine recharge basins of various sizes for combined total of about 230 acres of recharge basins. The proposed well locations within the SAVSARP recharge facility and their proximity to the recharge basins are shown on Figure 1.

Water levels fluctuate due to effects associated with SAVSARP recharge and recovery operations. The depth to water near the proposed wells is about 215 feet below land surface based on nearby monitoring wells measured on September 4, 2014 (Tucson Water, 2014). From December 2006 to September 2014, the average rate of water-level change in the vicinity of the

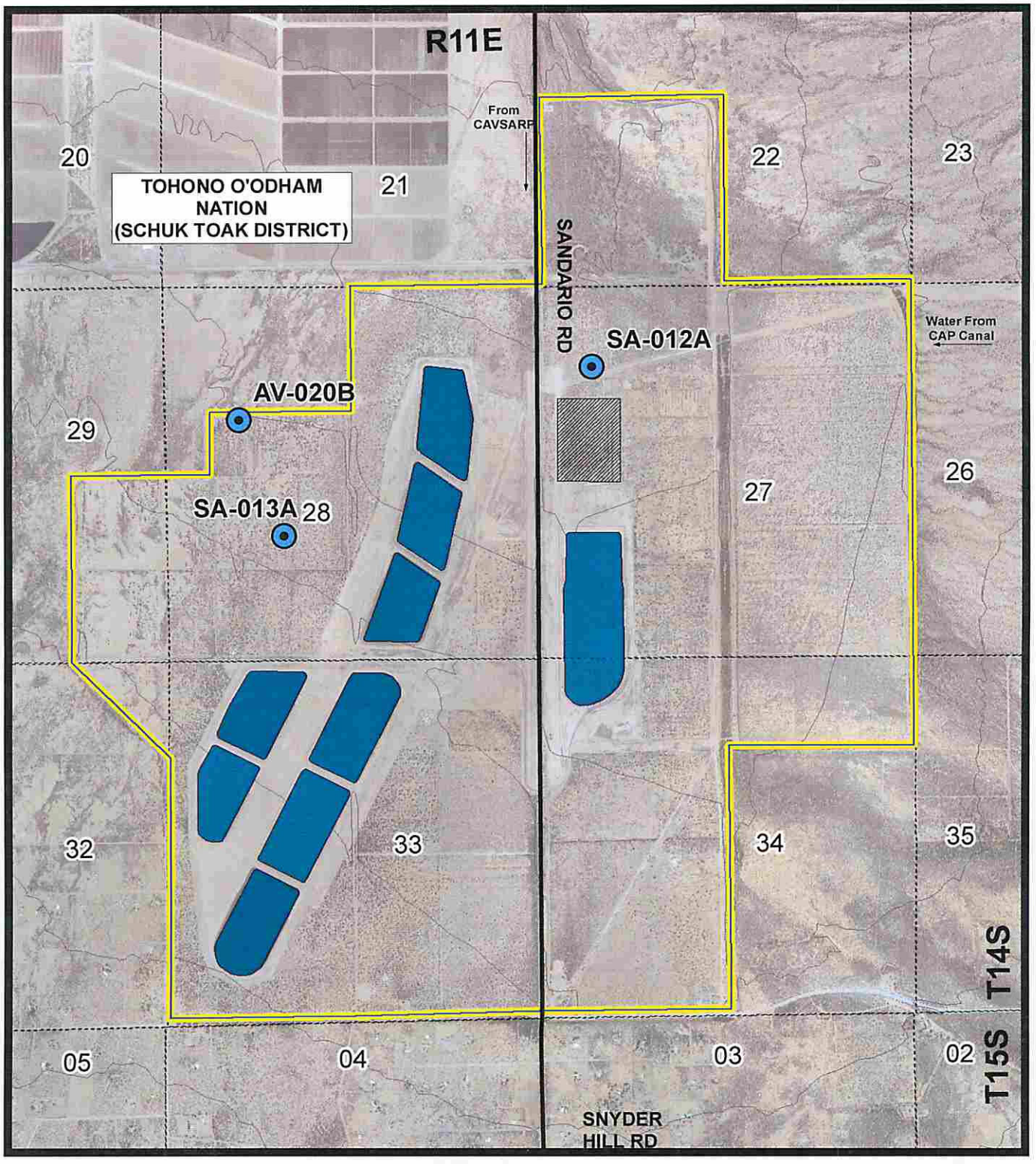


Figure 1 - SAVSARP Proposed Wells Site Plan (AV-020B, SA-012A, SA-013A)

proposed wellsites is estimated to be approximately 26 feet of rise per year (Tucson Water, 2014). This estimate of water level change is based on water levels measured at nearby Tucson Water wells located near the proposed wells.

AQUIFER PARAMETERS

MODFLOW 2005 was used to construct a 4800 active cell, three layer impact model designed to function as a selected fraction of the domain of the ADWR Tucson Active Management Area (TAMA) model (Mason and Hipke, 2013). The selected model area was centered over the location of the Southern Avra Valley Recharge Project (SAVSARP) facility. The aquifer parameters selected for this hydrologic impact analysis were derived from the hydraulic conductivity and storage values of the TAMA model. Additionally, the produced hydraulic head gradient at the end of the last stress period of the TAMA model was used to derive the water table elevations and the north-northwest natural groundwater flow near the proposed well locations. However, as SAVSARP has undergone intense recharge operations coupled with a low degree of recovery, groundwater flow is predominantly radial, moving away from the pronounced groundwater mound beneath the recharge basins.

To recreate the groundwater mound of the TAMA model, 151 cells in the top layer were designated for recharging 34,755.3 acre-feet of CAP water, equally distributed throughout the cells. This recharge value was derived from the net influx between the volume recharged and the volume withdrawn from the aquifer beneath SAVSARP during the last stress period of the TAMA model.

The goal of this process is to create a "base case" scenario, based off the last stress period of the TAMA model. Generally, a "base case" scenario describes a model that can be run under steady state conditions. However, the presence of intense anthropogenic recharge creates a highly dynamic system, where groundwater is going into storage, which thwarts the ability to make the last TAMA stress period a steady state condition. To remediate this issue, 52 general

head boundary conditions were imposed to line the perimeter of each layer of the impact model, for a total of 156 cells. The implementation of the numerous general head boundaries creates a groundwater mound that is static, permitting the impact model to be run under steady state conditions and ultimately creates a reproducible "base case" scenario. Parameter Estimation PEST was used to calibrate the conductance of each general head boundary and create a hydraulic head gradient and elevation distribution coincident with the TAMA model.

The hydraulic conductivity values of the model were distributed via geographically overlaying the TAMA grid over the impact model grid comprised of uniform cells with dimensions of 330 by 330 feet. Each impact model cell was granted the hydraulic conductivity value of the TAMA cell that intercepted the impact model cell's centroid. The same process was followed to transfer the TAMA model's heterogeneously distributed specific yield, recharge and the top and bottom elevations of each layer at each model cell.

Since AV-020B, SA-012A and SA-013A are recovery wells, the continued recharge of CAP water in the 9 existing recharge basins was input into the impact model. 115 cells within the model were designated as recharge cells to represent the aquifer impact of basins. A greater proportion of recharge was implemented within the southern modeled recharge cells to better represent the actual infiltrative efficiency of the southernmost three basins. The basins are expected to successfully recharge a total of 60,000 AF/yr according to facility operations completed in 2013.

PROJECTED DEMAND

The projected demand for each proposed well based on normal usage will require an annual average pumping discharge rate (Q) of 3,000 AF/yr or 1859.88 gallons per minute (gpm). An average discharge rate of 1859.88 gpm for each well was therefore entered into the model, for a total of 5579.65 gpm.

The well spacing and well impact rules (R12-15-830) prescribed by ADWR require that the projected cumulative declines in water levels be calculated for the proposed well after the first five years of operation. This implies that the proposed well will be operated under a 100 percent

duty cycle (i.e. pumped continuously) for the first five years. The volume of water withdrawn each year under a 100 percent duty cycle is calculated below:

Volume Withdrawn = 5579.65 * 60 min * 24hr * 365 days
Per Year = 2.9327 billion gallons (9,000 acre-feet)

The operation of the wells on a 100 percent duty cycle is not a practical assumption due to fluctuating municipal demand and well maintenance requirements. However, by evaluating projected water-level declines under this mode, the analysis more closely approximates a worst-case condition.

Values of drawdown (after five years of pumping) for various distances from the proposed wells were calculated based on the theoretical effects of the proposed pumping well. The water-level declines associated with the proposed pumping wells were simulated through the implementation of simulated wells located at their proportionate distances from the recharge basins at SAVSARP. The proposed screening depth of the three wells is between 600 and 900 feet below surface, coincident with the majority of the existent drilled wells present at SAVSARP that directly intercept the groundwater mound. Consequently, the three wells are all located solely in the bottom layer of the model, and the resultant drawdown from the wells' operation is limited to the bottom layer.

The entire simulation was run for two stress periods. The first stress period represents a 365 day time period and simulates the steady-state condition of the facility, with 34,755.3 AF of modeled recharge to emulate the facility's actual net influx. The second stress period represents a 5-year time period and is run under transient conditions. 60,000 AF/yr of recharge and 3,000 AF/yr of recovery at each of the proposed wells are modeled within this stress period. The change in hydraulic head between the ends of the first and last stress periods represents the projected mounding and drawdown elicited by the simulated operation.

PROJECTED IMPACT

The model predicted that after 1,825 days of pumping, the 10-foot drawdown contour would be non-existent at AV-020B and SA-013A. The modeled water table does not drop ten feet within the wells' casings. At SA-012A the model predicts the presence of 10-foot drawdown contour with a radius of 37 feet away from the well. This contour is well within the boundaries of the City of Tucson owned SAVSARP facility and too small to plot on Figure 1. As a result, the simulation predicted that the hydrologic impact from the operation of AV-020B, SA-012A and SA-013A would be completely contained within the SAVSARP facility; therefore, no non-City owned water production wells of record are within the prescribed area of hydrologic impact.

REFERENCES

Mason, Dale and Wesley Hipke. 2013. *Regional Groundwater Flow Model of the Tucson Active Management Area, Arizona: Modeling Report No. 24.* Arizona Department of Water Resources, Hydrology Division.

Tucson Water, 2007. *2004 Groundwater level Basic Data Report for, Tucson and Avra Valley, Pima County, Arizona Water* Resources Management.

Tucson Water, 2014. *Tucson Water Static Water Level Database.*

APPENDIX A

LISTING OF REGISTERED WELLS IN THE STUDY AREA

Printed: 1/14/2015 1:53:05 PM

Arizona Department of Water Resources

3550 N Central Ave.
Phoenix AZ 85012

Customer:

CITY OF TUCSON / TUCSON WATER
ATTN: CHUCK FAAS
PO BOX 27210
TUCSON, AZ 85726

Receipt #: 15-36418
Office: MAIN OFFICE
Receipt Date: 10/30/2014
Sale Type: IN_PERSON
Cashier: WRSAM

Item No.	Index	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
70610	15245	4439-TT	Application for permit to drill non-exempt well in an active management area	224084	1	150.00	150.00
				RECEIPT TOTAL:			**150.00**

Payment type: CREDIT CARD
Amount Paid: $150.00
Payment Received Date: 10/30/2014

Authorization 126627270

Notes: FROM TTA.

Refund:
Request Date: 1/14/2015 Approved:
Request Notes: Refund is required; applicant resubmitted proposed wells on a recovery well application. Stella
Update Date:
Approved Notes:

No refund without valid receipt

Printed: 1/14/2015 1:43:29 PM

Arizona Department of Water Resources

3550 N Central Ave.
Phoenix AZ 85012

Customer:

CITY OF TUCSON / TUCSON WATER
ATTN: CHUCK FAAS
PO BOX 27210
TUCSON, AZ 85726

Receipt #: 15-36418
Office: MAIN OFFICE
Receipt Date: 10/30/2014
Sale Type: IN_PERSON
Cashier: WRSAM

Item No.	Index	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
70610	15245	4439-TT	Application for permit to drill non-exempt well in an active management area	224084	1	150.00	150.00
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Payment type: CREDIT CARD
Amount Paid: $150.00
Payment Received Date: 10/30/2014

Authorization 126627270

Notes: FROM TTA.

No refund without valid receipt